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REMARKS

The Office action dated May 20, 2004 and the cited references have been carefully considered.

Status of the Claims

Claims 1, 2, 4-25, and 39-46 are pending. Claim 47 is new. Therefore, claims 1, 2, 4-25, and 39-47 will be pending following entry of the foregoing amendments.

Claims 2, 5, 6, 41, and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicants wish to thank the Examiner for indicating that these claims are allowable. Claim 2 has been rewritten in independent form including all of the limitations of the base claim. Claim 5 depends upon claim 2, and claims 6, 41, and 42 depend upon claim 5. Therefore, claims 2, 5, 6, 41, and 42 are now in condition for allowance. Early allowance is respectfully requested.

Claims 1, 4, 7-11, 39, and 40 are rejected under 35 U.S.C. § 102(e) as being anticipated by Jin et al. (U.S. Patent 6,250,984; hereinafter "Jin"). Claims 12-18, 23-25, and 43-46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugiyama (JP Patent Application 57-096453) in view of Lal (U.S. Patent 6,451,175). The Applicants respectfully traverse this rejection for the reasons set forth below.

Claim Rejection Under 35 U.S.C. § 102(e)

Claims 1, 4, 7-11, 39, and 40 are rejected under 35 U.S.C. § 102(e) as being anticipated by Jin. The Applicants respectfully traverse this rejection because Jin does not disclose all of the elements of each of claims 1, 4, 7-11, 39, and 40.

"[A]n invention is anticipated if the same device, including all the claim limitations, is shown in a single prior art reference. Every element of the claimed invention must be *literally* present, arranged as in the claim. . . . The identical invention must be shown in as

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complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

Although Jin mentions powders of metal-like ceramics such as Y-Ba-Cu-O or ferrites, Jin does not disclose oxygen-containing compounds of only alkaline-earth metals, as recited in claims 1, 4, 7-11, 39, and 40.

Since Jin does not disclose each and every element of each of claims 1, 4, 7-11, and 40, Jin does not anticipate these claims.

Claim rejection Under 35 U.S.C. § 103(a)

Claims 12-18, 23-25, and 43-46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugiyama in view of Lal. The Applicants respectfully traverse this rejection because a combination of Sugiyama and Lal does not teach or suggest all of the limitations of each of claims 12-18, 23-25, and 43-46.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." "If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious." M.P.E.P. § 2143.03 (8th ed., Rev. 1, Feb. 2003). Moreover, "it is error to treat the claim as a mere catalog of separate parts, in disregard of the part-to-part relationships set forth in the claim that give the claim its meaning. The focus must always be on the entirety of the claimed invention." *Structural Rubber Products Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

Sugiyama discloses only a metal pot filled with carbon fibers (having a diameter between 10 and 90 microns) and oxide or peroxide of an alkaline-earth metal. See Sugiyama, paragraph 7 of the translation provided earlier by the Examiner, and Figures 1a, 1b, and 2. Sugiyama does not teach or suggest an electron emitter with a coating that comprises carbon nanotubes having nanometer-sized diameter. The Examiner even admitted that "Sugiyama's composition is not coated on the electron emitters, but rather in the emitters." Office action, page 7. Therefore, adding Lal to show an electrical arc device

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and a process using such device to produce carbon nanotubes still does not teach or suggest all of the limitations of each of claims 12-18, 23-25, and 43-46.

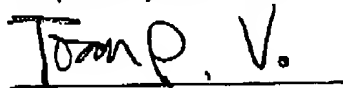
Since a combination of Sugiyama and Lal does not teach or suggest all of the limitations of each of claims 12-18, 23-25, and 43-46, these claims are patentable over Sugiyama in view of Lal.

The Applicants respectfully traverse the Examiners' suggestion that one of ordinary skill in the art would be motivated to use Lal's carbon nanotubes in place of Sugiyama's micron-sized carbon fibers because the mechanical strength of carbon nanotubes when Sugiyama teaches away from using any thing smaller than 10 microns. Sugiyama, paragraph 7 of the translation. First, it is not the mechanical strength of carbon nanotubes that would motivate the Applicants to use carbon nanotubes in the instant electrical application. Second, once Sugiyama warns that proper carbon particles for his invention be in the range from 10 to 90 microns, there is no motivation to use any other size.

Since the Examiner has not provided a proper motivation to replace Sugiyama's micron-sized fibers with carbon nanotubes, the Examiner has not established a *prima facie* case of obviousness.

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited. The Examiner is invited to call the Applicants' attorney in order to advance this application toward early allowance.

Respectfully submitted,



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